

REMARKS

1. In response to the Office Action mailed March 17, 2006, Applicants respectfully request reconsideration. Claims 1-7, 9-20 and 68-76 were last presented in the application. In the outstanding Office Action, all claims are rejected. In the above Amendments claims 1, 68 and 71 have been amended, no claims have been added and no claims have been cancelled. Thus, upon entry of this paper, claims 1-7, 9-20 and 68-76 will be pending in this application. Of these 29 claims, three (3) claims (claims 1, 68 and 71) are independent. Based on the above Amendments and following Remarks, Applicants respectfully request that all outstanding objections and rejections be reconsidered, and that they be withdrawn.

Claim Amendments

2. By the foregoing Amendments, Applicants have amended the claims to more clearly claim embodiments of the present invention. Applicants submit that the Amendments have not been made to overcome or accommodate any objection or rejection. Applicant further submits that no new matter has been added.

Art of Record

3. Applicants acknowledge receipt of form PTO-892 listing an additional reference identified by the Examiner.

Claim Rejections Under 35 U.S.C. 103(a)

4. Claims 1-4, 6, 7, 9, 10, 13, 14, 17, 19, 20, 71-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,047,074 to Zoels *et al.*, (hereinafter, Zoels), in view of U.S. Patent No. 6,231,604 to von Ilberg (hereinafter, von Illberg), in view of U.S. Patent No. 5,884,260 to Leonhard (hereinafter, Leonhard), and in view of U.S. Patent No. 5,933,805 to Boss *et al.*, (hereinafter, Boss).

In rejecting claim 1, the Examiner asserts that Zoels teaches the elements recited in Applicants' claim 1 including "at least one acoustic sensor, configured to sense an acoustic signal and configured to convert said acoustic signal into an electrical audio signal, an electronic signal processing unit configured to process and amplify said electrical audio

signal, said signal processing unit.” (See, Office Action, page 2.) Examiner admits that the remaining claim elements are not taught by Zoels and instead the Examiner relies on von Illberg, Leonhard, and Boss to teach that which is missing from Zoels. (See, Office Action, pages 2-5.)

5. Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 1 for at least the following reasons. First, the Examiner has failed to provide evidence of a proper motivation supporting the proposed combination of the cited references. Second, even if the references were combined as suggested by the Examiner, the proposed combination would still not contain all the elements of Applicants’ claim 1.

The Combination of References are prima facie Improper

6. Applicants respectfully assert that the rejection of claim 1 is *prima facie* improper for at least the reason that it provides no appropriate basis for combining Zoels with von Illberg.

7. As set forth in the Manual of Patent Examining Procedure (MPEP) at § 706.02(j), “[t]o establish a *prima facie* case of obviousness . . . there must be some suggestion or motivation, ***either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings*** (emphasis added) . . . The teaching or suggestion to make the claimed combination and the reasonable expectation of success ***must both be found in the prior art and not based on applicant’s disclosure*** (emphasis added). *In re Vaeck*, 947 F.2d. 488, 20 USPQ2d 1438 (Fed. Cir. 1991).”

8. In the Office Action, the Examiner acknowledges that Zoels does not specifically teach “an actuator arrangement configured to provide output stimulation and configured for positioning in a single external auditory passage; said actuator arrangement comprising at least dual output stimulators, wherein said output stimulators are at least one intracochlear electromechanical or purely electric stimulator, and at least an additional extracochlear electroacoustic, electromechanical, or purely electric stimulator” as recited in Applicants’ amended claim 1. (See, Office Action, page 3.) Rather, the Examiner relies on von Illberg to teach these claim elements. (See, Office Action, page 3.)

9. Also, in the rejection of claim 1, the Examiner asserts that “[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Zoels by specifically providing the transducer configuration as taught by von Illberg, because *it is well known in the art at the time of invention as having advantages for patients who are moderately hearing impaired.*” (See, Office Action, page 3.)

10. Unfortunately, this motivation provided by the Examiner fail to explain why one of ordinary skill in the art would be motivated to make the combination proposed by the Examiner. In fact, the references in their entirety, taken alone or in combination, fail to provide the requisite teaching or suggestion to make the combination as proposed by the Examiner.

11. As held by the Federal Circuit in *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002), specific reasons must be shown in the art suggesting a combination of references; See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (“[P]articular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed.”); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) (“[E]ven when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination.”).

12. Applicants respectfully submit that the Examiner has failed to meet the above burden in the § 103 rejection of claim 1. Zoels is directed to a combination of a device “for tinnitus therapy with a digital hearing aid [that] has the further advantage that this device can also be used for persons with normal hearing. (See, Zoels, col. 4, lns. 31-33.) In Zoels, “the hearing aid can be employed as a tinnitus masker... or only as hearing aid.” (See, Zoels, col. 2, lns. 16-19.) Therefore, Applicants assert that Zoels is directed to a hearing aid device for the hearing improvement of individuals who have little to moderate hearing loss and is not directed or intended to be used by individuals who have little to no hearing.

13. Von Illberg is directed to a combination device to improve hearing that “combines both acoustic mechanical stimulation and electrical stimulation... [that] produces significant advantages for a large group of hearing impaired patients, specifically

those who are between moderately impaired and on the border of deafness.” (See, von Illberg, col. 3, lns. 26-31.) In von Illberg, the “mechanical stimulation signal is delivered to the inner ear structure of the user by an acoustic mechanical stimulator receiver that ... may be as in a conventional hearing aid.” (See, von Illberg, col. 4, lns. 32-35.)

14. Furthermore, as noted in von Illberg, electrical stimulation is traditionally defined as stimulation in which:

“the stimulating electrodes should be placed as close as possible to the nerve endings of the auditory nerve. This occurs optimally when an electrode carrier is inserted into the cochlea. As a rule, this procedure results in the destruction of the structures of the inner ear which may still be functioning. *Therefore, this technique is not used when there is significant residual hearing.*” (See, von Illberg, col. 1, lns. 47-55 (emphasis added).)

15. As a result, in the device of von Illberg, extracochlear electrical stimulation is used such that “the electrical stimulation should be coupled to the cochlea *so that intact structures are not destroyed-the option for electrical stimulation alone at a later time via cochlear implantation.*” (emphasis added) (See, von Illberg, col. 3, lns. 34-38.)

Applicants assert that due to this facts, von Illberg teaches away from the use of intracochlear stimulation, especially intracochlear stimulation in combination with extracochlear stimulation. In fact, von Illberg suggests that the device of von Illberg would not function with a combination of “at least one intracochlear electromechanical or purely electric stimulator, and at least an additional extracochlear electroacoustic, electromechanical, or purely electric stimulator” as recited in Applicants’ claim 1.

16. Applicants respectfully assert that one of ordinary skill in the art **would not** have been motivated to “modify Zoels by specifically providing the transducer configuration, as taught by von Illberg, because it is well known in the art at the time of invention as having advantages for patients who are moderately hearing impaired” as recited by the Examiner. Specifically, because Zoels is directed towards a general hearing aid device for persons with residual hearing, there is no need to incorporate an “at least one intracochlear electromechanical or purely electric stimulator” into the device of Zoels.

17. In fact, as stated in the MPEP §2141.03, if a “proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then

there is no suggestion or motivation to make the proposed combination.” (citing, *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)). In the present case, the modification of Zoels to include the “at least one intracochlear electromechanical or purely electric stimulator” would render Zoels unsatisfactory for “having advantages for patients who are moderately hearing impaired” as asserted by the Examiner. Therefore, for these reasons, Applicants submit that the references taken alone or in combination fail to provide any motivation to make the combination of Zoels and von Illberg as asserted by the Examiner.

18. Second, the rejection of claim 1 is *prima facie* improper for at least the reason that it provides no appropriate basis for combining Zoels with Leonhard. In the prior response, Applicants asserted that there is no motivation to combine the alleged noise reduction techniques of Leonhard with Zoels because Zoels already contains a means for reducing noise in the system. (See, Applicants’ response to OA of 9/29/05, page 12.) As evidence, Applicants noted that in Zoels “[a] person with normal hearing can employ the digital hearing aid as a communication device... that **reduces the unwanted noises present in the useful signal.**” (emphasis added) (See, Zoels, col. 4, lns. 33-38.)

19. In response, the Examiner rejected Applicants’ arguments and stated that “while Zoels indicates the benefits of noise reduction... Zoels does not go into the specifics of any noise reduction algorithms which are further discussed by Leonhard.” (See, Office Action, page 22.) However, not only does Zoels “indicate the benefits of noise reduction,” but, as noted above, the device of Zoels is also capable of actually reducing noise in a signal. (See, Zoels, col. 4, lns. 33-38.)

20. The Examiner is respectfully reminded that a reference may be sufficient to stand for something, even if it does not state details. (See, MPEP §2123, noting that “a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art;” *see also, Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.)). In accordance with this above cited case law, because Zoels already discloses noise reduction in a signal this alone is sufficient to teach to one of ordinary skill in the art a means of “improving the quality of the speech signal” as asserted by the Examiner. (See, Office Action, page 4.) Therefore, because Zoels already has means for “improving the quality of the speech signal,” the Examiner’s provided

motivation completely fails to explain why one of ordinary skill in the art would have been motivated combine the teachings of Leonhard with the device of Zoels.

21. As stated in the MPEP §2141, “the references must be viewed without the benefit of *impermissible* hindsight vision afforded by the claimed invention.” As stated by the Federal Circuit in *Cardiac Pacemakers Inc. v. St Jude Medical Inc.*, 72 USQP2d 1333, 1336 (Fed. Cir. 2004), “[p]rior knowledge in the field of the invention must be supported by tangible teachings of reference materials, and the suggestion to combine references must not be derived by hindsight from knowledge of the invention itself; *see also Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1578-79, 42 USPQ2d 1378, (Fed. Cir. 1997). Furthermore, as stated in *In re Lee* at 1434, “[i]t is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to “[use] that which the inventor taught against its teacher. *W.L. Gore v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).”

22. Applicants assert that the Examiner has used impermissible hindsight to make the combination of references because the references completely fail to show why a person of ordinary skill in the art would have been motivated to make the suggested combination. Although the Examiner has attempted to some motivation, and has directed the Applicants to portions of the references, the Applicants have shown that this supplied motivation is entirely insufficient. The portions of the references cited by the Examiner, as well as the references in their entirety, fail to provide the necessary teachings or suggestions required of motivation, as explained above. For at least these reasons, Applicants respectfully assert that the Examiner has used impermissible hindsight to explain why one of ordinary skill in the art would be motivated to modify Zoels in view of von Illberg, in view of Leonhard, in further view of Boss.

The Proposed Combination Lacks Elements of Applicants’ Claim 1

23. Furthermore, even if the references were to be combined as suggested in the Office Action, the resulting device would still not result in, neither would it have the advantages of, the present invention as recited in claim 1, without substantial modifications being made to the resulting system. As set forth in the MPEP at §2142, “to establish a *prima facie* case of obviousness... the prior art reference (or references when combined) must teach or suggest all of the claim limitations.”

24. As noted by the Examiner, Zoels only teaches the elements of Applicants' claim 1 of "at least one acoustic sensor, configured to sense an acoustic signal and configured to convert said acoustic signal into an electrical audio signal, an electronic signal processing unit configured to process and amplify said electrical audio signal." (See, Office Action, page 2.) The Examiner is forced to rely upon various other references to teach the remaining claim elements. Unfortunately, the alternative references relied upon by the Examiner fail to teach or suggest that which is asserted by the Examiner.

25. First, the Examiner relies upon von Illberg to teach the claim elements recited in Applicants' amended claim 1 of "an actuator arrangement configured to provide output stimulation and configured for positioning in a single external auditory passage; said actuator arrangement comprising at least dual output stimulators, wherein said output stimulators are at least one intracochlear electromechanical or purely electric stimulator, and at least an additional extracochlear electroacoustic, electromechanical, or purely electric stimulator." (See, Office Action, page 3.) However, von Illberg teaches the use of a combination of "acoustic mechanical stimulation and electrical stimulation... [wherein] the electrical stimulation should be coupled to the cochlea so that intact structures are not destroyed-the option for electrical stimulation alone at a later time via cochlear implantation should remain." (See, von Illberg, col. 3, lns. 26-41.) This excerpt from von Illberg indicates that the device of von Illberg is incapable of operating with a combination of "dual output stimulators, wherein said output stimulators are at least one intracochlear electromechanical or purely electric stimulator, and at least an additional extracochlear electroacoustic, electromechanical, or purely electric stimulator" as recited in Applicants' claim 1. Furthermore, the entire von Illberg disclosure fails to teach or suggest such a configuration.

26. Second, in the Office Action the Examiner asserts that Zoels teaches a programmable hearing aid with a signal processor. (See, Office Action, page 4.) However, the Examiner recognized that Zoels does not teach or suggest "a speech analysis and recognition module, wherein said speech analysis and recognition module is arranged to detect and extract additional prosody of the speech information, and a speech synthesis module configured to facilitate the transmission of speech information in a noisy environment; wherein said speech synthesis module is arranged to take into account the prosody of speech information in speech synthesis" as recited in Applicants' claim 1. (See,

Office Action, page 4). In the Office Action mailed 8/29/2005, the Examiner stated that Zoels in view of Leonhard do not specifically teach the above claim elements. (*See*, Office Action dated 8/29/2005, page 4.) Instead, the Examiner stated that the above claim elements were “well known in the art, as taught by Boss.” (*See*, Office Action dated 8/29/2005, page 4.)

27. However, in the current Office Action, the Examiner has now taken a divided opinion of this issue. In the Office Action at page 4, the Examiner has retained his prior arguments and again asserts that the above claim elements are not taught by Zoels and Leonhard, but such elements are “well known in the art as taught by Boss. (*See*, Office Action, page 4.) However, in the same Office Action at page 25, the Examiner has shifted positions and currently asserts that the above claim elements are no longer taught just by Boss, and instead are taught by the combination of Zoels, Leonhard and Boss. (*See*, Office Action, page 5.)

28. Unfortunately, the Examiner is still mistaken in this new assertion. In the Office Action, the Examiner states that “Leonhard discloses analysis, recognition, and synthesis techniques for processing speech in a noisy environment based on *phoneme recognition*.” (emphasis added) (*See*, Office Action, page 25.). Furthermore, the Examiner asserts that “Boss teaches the recognition of phonemes and prosodic information and the subsequent use of the prosodic information during synthesis.” (*See*, Office Action, page 25.) Following these broad statements, the Examiner then merely makes the conclusory statement that “[t]hus the combination of Zoels in view of Leonhard and Boss teaches the above limitations.” (*See*, Office Action, page 25.) The Examiner has provided no other explanation on how these elements teach or suggest “a speech analysis and recognition module, wherein said speech analysis and recognition module is arranged to detect and extract additional prosody of the speech information, and a speech synthesis module configured to facilitate the transmission of speech information in a noisy environment; wherein said speech synthesis module is arranged to take into account the prosody of speech information in speech synthesis” as recited in Applicants’ claim 1. For at least the reason that the Examiner has failed to show these all elements of Applicants’ claim 1 in the prior art, the Applicants submit that the §103 rejection was improper.

29. Applicants further submit that the Examiner has failed to show all elements of claim 1 because no such teaching or suggestion exists in the cited references. As recognized by the Examiner, Leonhard is directed to speech recognition and synthesis based on phoneme recognition. (See, Office Action, page 25; Leonhard, col. 2, lns. 26-55.) Specifically, Leonhard uses a speech recognition system as shown in FIG. 19 that “comprises units which are normally used in speech recognition systems, such as a pattern recognition unit,... a unit for phoneme determination and a unit for word/sentence determination.” (See, Leonhard, col. 13, lns. 14-27; FIG. 19.) The phoneme, vowel or other sound picture is determined by the detection of sudden energy changes in an auditory signal. (See, Leonhard, col. 3, lns. 30-42.)

30. In contrast, Boss is directed to a device that uses a speech analyzer to identify a particular phoneme, and then uses a plurality of detectors to detect various prosodic parameters of each of the speech phonemes, referred to as prosodic parameter detectors. (See, Boss, abstract, col. 3, lns. 1-19.) Rather than disclosing “a speech analysis and recognition module, wherein said speech analysis and recognition module is arranged to detect and extract additional prosody of the speech information” as recited in Applicants’ claim 1, Boss discloses a speech analyzer that detects phonemes (such as the device in Leonhard) and a plurality of prosodic parameter detectors to determine prosodic parameters from each phoneme. (See, Boss, col. 3, lns. 1-19.)

31. As a result, both Boss and Leonhard, alone or in combination, completely fail to teach or suggest “a speech analysis and recognition module, wherein said speech analysis and recognition module is arranged to detect and extract additional prosody of the speech information” as recited in Applicants’ claim 1. For at least this reason, Applicants submit that the rejection of claim 1 under §103 was improper and should be withdrawn.

32. Furthermore, for the above outlined reasons, Applicants submit that the Examiner has maintained that the combination of Zoels, Leonhard, and Boss teach or suggest “a speech analysis and recognition module, wherein said speech analysis and recognition module is arranged to detect and extract additional prosody of the speech information” based on facts within the personal knowledge of the Examiner. Accordingly, under 37 C.F.R. § 1.104(d)(2), the Applicants hereby request that the Examiner provide

affidavit(s) or declaration(s) that contain these facts supporting each of the Examiner's assertions used as a basis for the rejections of claim 1.

33. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zoels in view of von Ilberg, Leonhard and Boss as applied to claim 1 above, and further in view of *Using Speech Recognition*, Prentice Hall, 1996, by Markowitz, (hereinafter, Markowitz). Furthermore, claims 11, 12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zoels in view of von Ilberg, Leonhard and Boss as applied to claim 10 above, and further in view of well known prior art. Also, claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zoels in view of von Ilberg, Leonhard and Boss as applied to claim 1 above, and further in view of U.S. Patent No. 5,608,803 to Magotra, *et al.*, (hereinafter, Magotra).

34. Applicants respectfully submit for at least the reasons provided about with reference to claim 1, the rejection of these claims under 35 U.S.C. 103 were improper and should be withdrawn. Applicants further submit that the additional references relied upon in these rejections do not teach or suggest that which is missing from the references applied to claim 1.

Rejection of Independent Claim 71

35. In the Office Action, the Examiner has rejected independent claim 71 under 35 U.S.C. 103(a) as being unpatentable over Zoels, in view of von Illberg, in view of Leonhard and Boss. Although the Examiner has not specifically stated reasons for the rejection of claim 71, it appears the Examiner has rejected claim 71 for the same reasons as applied to claim 1.

36. Applicants respectfully submit the rejection of claim 71 under 35 U.S.C. 103 was improper and should be withdrawn for at least the reasons that there is no motivation to combine the references, and even if the references were combined, they still would not teach or suggest all elements of Applicants' claim 71.

37. Specifically, for the reasons outlined above with reference to claim 1, no teaching or suggestion exists in the art of record that would motivate one of ordinary skill in the art to combine the teachings of von Illberg with Zoels, as well as to combine the

teachings of Leonhard with Zoels. Furthermore, as noted above, the Examiner has relied upon impermissible hindsight in making the proposed combinations.

38. Also, for the reasons recited above, Applicants submit that the proposed combination of elements would still fail to teach or suggest all elements of Applicants' claim 71. Specifically, the proposed combination of elements fail to teach or suggest "an actuator arrangement configured to provide output stimulation and configured for positioning in a single external auditory passage; said actuator arrangement comprising at least dual output stimulators, wherein said output stimulators are at least one intracochlear electromechanical or purely electric, and at least an additional extracochlear electroacoustic, electromechanical, or purely electric stimulator" as recited in Applicants' claim 71.

39. Furthermore, the proposed combination fails to teach or suggest "a speech analysis and recognition module, configured to facilitate the transmission of speech information in a noisy environment; a speech synthesis module arranged to take into account the prosody of speech information in speech synthesis" as recited in Applicants' claim 71.

40. For at least these reasons, Applicants respectfully submit that rejection of claim 71 under §103 was improper and should be withdrawn.

Rejection of Claims 68-70

41. Claims 68-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zoels in view of Leonhard and Boss.

42. Applicants respectfully submit the rejection of claim 68 under 35 U.S.C. 103 was improper and should be withdrawn for at least the reasons that there is no motivation to combine the references, and even if the references were combined, they still would not teach or suggest all elements of Applicants' claim 68.

43. Specifically, for the reasons outlined above with reference to claim 1, no teaching or suggestion exists in the art of record that would motivate one of ordinary skill in the art to combine the teachings of Leonhard with Zoels. Furthermore, as noted above, the Examiner has relied upon impermissible hindsight in making this proposed combination.

44. Also, for the reasons recited above, Applicants submit that the proposed combination of elements would still fail to teach or suggest all elements of Applicants' claim 68. Specifically, the proposed combination fails to teach or suggest "a speech analysis and recognition module, wherein said speech analysis and recognition module are configured to perform at least one of speech information segmentation or recognition, and wherein said speech analysis and recognition module are arranged to detect and extract additional prosody of the speech information, and a speech synthesis module configured to facilitate the transmission of speech information in a noisy environment, wherein said speech synthesis module is arranged to take into account the prosody of speech information in speech synthesis" as recited in Applicants' claim 68.

45. For at least these reasons, Applicants respectfully submit that rejection of claim 68 under §103 was improper and should be withdrawn.

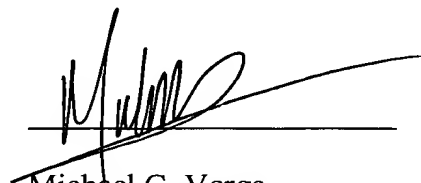
Dependent Claims

46. The dependent claims incorporate all of the subject matter of their respective independent claims and add additional subject matter, which makes them a fortiori and independently patentable over the art of record. Accordingly, Applicants respectfully request that the outstanding rejections of the dependent claims be reconsidered and withdrawn.

Conclusion

47. In view of the foregoing, this application should be in condition for allowance. A notice to this effect is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael G. Verga', is written over a horizontal line.

Michael G. Verga
Reg. No. 39,410
Tel. (703) 563-2005

June 15, 2006